

Remarks

Status of Claims

Claims 1 – 20 were original in the application. Claims 21 – 25 were added. Claims 1 – 15 have been allowed. Claims 16 – 20 and 25 have been cancelled. Claim 21 has been amended. Claims 26 – 29 have been added. Therefore, claims 21 – 24 and 26 – 29 are submitted as also being in allowable condition.

Rejection Pursuant to 35 USC 112

Claims 21 – 25 were rejected only on the ground that it was contended that the specification failed to show the combination of combining the steps of: (1) improving a method of microfabricating three dimensional structure in deformable silicone elastomer; and (2) directionally etching the silicone elastomer.

The Examiner appears to base this contention on two readings. First, in the specification at page 6, line 14, a sentence states: "In another plasma fabrication procedure, we have developed a technique necessary to directionally etch the elastomer material." By the phrase "In another plasma fabrication procedure" the Examiner concludes that this other procedure is not to be combined with the procedure just previously disclosed, namely the claimed method of microfabricating three dimensional structure in deformable silicone elastomer. This does not follow.

At page 2, lines 11 and 12, it is stated that:

“**The invention is defined in one embodiment as an improvement in a method of microfabricating elastomeric material having a characterizing surface tension.**”

At page 3, lines 10 and 11, it is stated that:

“**The invention is also defined as a method of directionally etching an elastomeric material . . .**”

These alternative descriptions are clearly of what is contemplated in the same short specification as THE INVENTION, i.e. the same invention, otherwise directional etching would not be “also defined” as a method of directionally etching, but would have stated as “being yet another invention” or words to that effect.

Second, the Examiner notes lack of antecedent basis in claims 21 and 25 for reference to “an elastomeric material” instead of the silicone elastomer, but misconstrues this as proving that is was never intended to practice directional etching with the disclosed method of microfabricating in silicone elastomer. This defect has been responsively amended.

Note that in the quoted section of the specification above reference was made an “improvement in a method of microfabricating **elastomeric material.**” The term, “elastomeric material”, has been used as interchangeable with silicone elastomer throughout the specification and it reads too much into the choice of these alternative, equivalent expressions to conclude that the claimed methods carried out on them are not taught as

combinable. The applicant contends that to teach the two aspects of the claimed method are in fact not combinable, other than not being true, would have required an express disclosure to the same effect, since their combination would naturally be presumed, if not explicitly understood, in the context of the disclosure.

The steps of claim 1 combine in claims 21 and 25 with the additional steps claimed in these claims to define a process with multiple steps or more steps than are just recited in claim 1 alone. The subject matter of the claims in no way contraindicates that the steps would not be combined in a method. In claim 1 a three dimensional structure is photolithographically fabricated in the deformable silicone elastomer using semiconductor fabricating procedures, including reactive sputter deposition of a layer, such as a silicon layer, to then allow masking layers to be formed on the sputtered (silicon) layer by means of which the three dimensional structure can then be photolithographically microfabricated into the silicone elastomer. This method may or may not use directional etching to photolithographically microfabricate a three dimensional structure into the silicone elastomer. Directional etching is per se a well known photolithographic microfabrication step and would be understood to among the many means by which structures can be photolithographically microfabricated.

However, directional etching in silicone elastomer is not previously known, or more particularly directional etching in silicone elastomer by providing an RF plasma etching system, creating an oxygen plasma in the

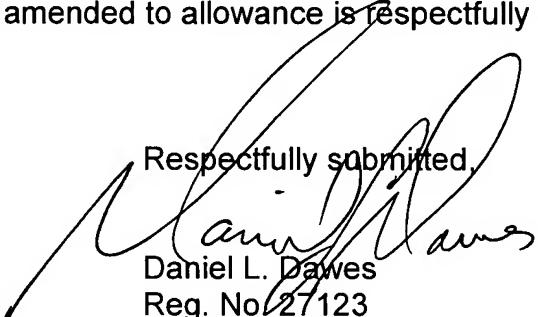
presence of Freon in the RF plasma etching system, and removing silicon tetrafluoride from the RF plasma etching system.

The specification is concise and relatively short. However, all the paragraphs must be read in combination as being directed to a combined teaching and no paragraph should be understood in isolation of the others in the specification.

The applicant is also entitled to independently claim the directional etching step in added claims .

Advancement of the claims as amended to allowance is respectfully requested.

Respectfully submitted,


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